

## ABSTRACT

Disclosed is a high speed electro-optical sensor system to determine quality of objects, such as lumber, having complex structures such as grain, knots and the like. It is particularly concerned with electro-optical sensors useful for this purpose, for example those employing the tracheid or other grain induced distortion effects, or those based on visually discernable defects due to contrast variation. Preferred versions use computer processed data from TV cameras viewing laser spot illumination of boards.

1. A high speed electro-optical sensor system for determining the quality of objects, such as lumber, having complex structures such as grain, knots and the like, comprising: a laser source; a TV camera; and a computer processor; wherein the laser source is adapted to illuminate the objects with a laser spot; the TV camera is adapted to view the objects through the laser spot; and the computer processor is adapted to process the data from the TV camera to determine the quality of the objects.